Soviet experiments of various guided and unguided devices before 1945

klem 9 October 2021 1930s early 1940s interwar period pre-world war ii red army soviet air forces soviet union ussr world war ii

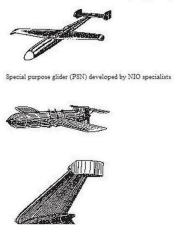
klem
I really should change my personal text
Joined 7 March 2015
Messages 621
Reaction score 1,258

9 October 2021 #1

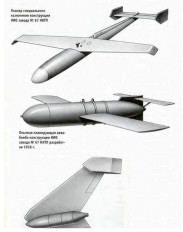
Since the end of the First World War, bold attempts were made in the Soviet Union in the field of rockets and various types of weapons, although timid, but existing and somewhat significant for the hard period that the Union was going through at that time, sometimes typically handcrafted and sometimes a little daring and unsuccessful, but the technological conditions of the time did not offer good results.

Attachments

Glide Bomb AF-82 (1935).jpg



NIO Gliders (1947).jpg



Pic00.jpg

World B4, dwkr01 and Grey Havoc Reply

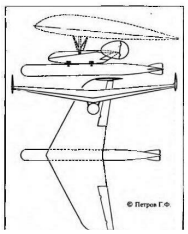
klem
I really should change my personal text
Joined 7 March 2015
Messages 621
Reaction score 1,258

9 October 2021 #2

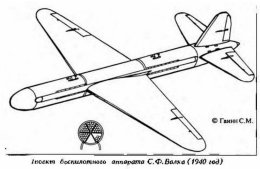
The engineer Solomon Valk among his projects there were other variants less known to the general public notably a pilotless bomb and another glide torpedo.

Attachments

a.jpg



b.jpg



c.jpg

sov.jpg

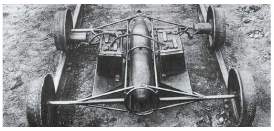
dwkr01 and Grey Havoc Reply

klem
I really should change my personal text
Joined 7 March 2015
Messages 621
Reaction score 1,258

10 October 2021 #3

In the air, on land, on sea and on rail, the fight had to go on and so did the political machine to push everyone to work for victory and think of weapon ideas to sabotage the enemy's rail transport.

Attachments



Railroad Torpedo ZHDT-3 (100k...

Pioneer, dwkr01, World B4 and 1 other person Reply

Dilandu
I'm dissatisfied, which means, I exist.

10 October 2021 #4

> klem said:
>
> Since the end of the First World War, bold attempts were made in the Soviet Union in the field of rockets and various types of weapons, although timid, but existing and somewhat significant for the hard period that the Union was going through at that time, sometimes typically handcrafted and sometimes a little daring and unsuccessful, but the technological conditions of the time did not offer good results.

Joined 30 May 2013
Messages 3,482
Reaction score 3,771
Website
fonzeppelin.livejournal

Those are various 1920-1930s attempts to create aerodynamically-stable glide bomb, capable of hitting targets from standoff distance. USSR in 1930s have the largest heavy bomber fleet in the world (more than 800 TB-3 build) and attempted to made them stay relevant by providing with long-range weapon.

A_Random_Guy, Grey Havoc and Archibald

Reply

Dilandu
I'm dissatisfied, which means, I exist.
Joined 30 May 2013
Messages 3,482
Reaction score 3,771
Website
fonzeppelin.livejournal

10 October 2021 #5

If you are interested, I have a large number of articles about Soviet guided weapon experiments before and during World War 2:

https://fonzeppelin.livejournal.com/154118.html

On Russian, I must warn you.

MmMeM, Antonio, A_Random_Guy and 4 others

Reply

klem
I really should change my personal text
Joined 7 March 2015
Messages 621
Reaction score 1,258

11 October 2021 #6

> Dilandu said:
>
> If you are interested, I have a large number of articles about Soviet guided weapon experiments before and during World War 2:
>
> https://fonzeppelin.livejournal.com/154118.html
>
> On Russian, I must warn you.

Thanks.I m a follower of livejournal.great work.

Dilandu

Reply

Dilandu
I'm dissatisfied, which means, I exist.
Joined 30 May 2013
Messages 3,482
Reaction score 3,771
Website
fonzeppelin.livejournal

11 October 2021 #7

> klem said:
>
> Thanks.I m a follower of livejournal.great

You are welcome) I also have articles on American, British, French, Italian and Japanese WW2-era guided weapon here.

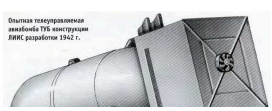
Reply

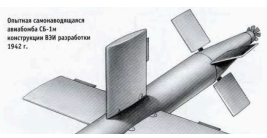
klem
I really should change my personal text
Joined 7 March 2015
Messages 621
Reaction score 1,258

15 October 2021 #8

During 1930, the NII-24 in Leningrad developed in 1938 the KAB-436, a self-guided aerial bomb, with a homing head against enemy light ships and transports.its guidance system worked by photo-contrast, using a photoelectric cell to scan the light stream (Pic 01). In 1939.The KAB-5103 bomb (Pic 02) was developed and designed to destroy armored warships, battleships and heavy cruisers. The seeker head device and control equipment were identical to those of the KAB-436, with the only exception that the power supply for the electronics was provided by a generator with a rotating propeller. The work on the NII-24 research bombs was never completed. With the beginning of the war in 1941. The Remote-controlled aerial bomb TUB (LIIS) (Pic03), was designed in 1942, by the Institute of Communication Engineers of Leningrad, it was radio-controlled by an operator with the help of a television camera mounted in the nose of the bomb. In the tail of the bomb there was a rectangular control unit with radio equipment, actuators, and four retractable aerodynamic spoiler planes. In the front, behind the fairing, a television camera which diffused on the screen of the operator of the carrier plane. The project will never succeed because of the imperfection of the television equipment and the complexity of its manufacture and its maintenance. The USSR made its first steps in the field of the radio electronics and the costs made him obstacle.
The Auto-Guiding infrared Aerial Bomb SB1-M (Pic 04) Developed by (VEI) in 1942, its role was the destruction of large heat-emitting targets such as industrial plants (steel mills, refineries, power plants). Two pictures exist of this bomb so that it is difficult to know which is the first model SB-1 or SB-1 M (Pic 05) However its main disadvantage was its low destructive power 500 kg, a small warhead could not ensure a reliable destruction of the targets. Consequently, the further development of the project was abandoned.

Attachments





Pic05.jpg

Pic02.png

Pic03.png

Pic04.png

MmMeM, Grey Havoc, World B4 and 2 others

Reply

Dilandu

I'm dissatisfied, which means, I exist.

Joined 30 May 2013
Messages 3,482
Reaction score 3,771
Website fonzeppelin.livejournal

16 October 2021 #9

> klem said:
>
> The seeker head device and control equipment were identical to those of the KAB-436, with the only exception that the power supply for the electronics was provided by a generator with a rotating propeller

Not the only difference. On KAB-5103, the seeker head was placed BEHIND the warhead, with two periscopes on sides to provide field of view. The reasoning was, that KAB-5103 was armor-piercing munition, which required good angle of impact, and placing seeker in front of warhead would spoil the impact.

The seeker device itself was one-directional, it provided guidance only in range (not in azimuth). The scanning device was a cylinder, mirror-surface inside, and opaque external surface. There was a transparent strip on the external surface, that allowed light inside. Rotating, the cylinder scanned the image in front of the bomb line-by-line, mirror surface inside reflected light on the photocell.

The ship was scanned as a dark spot on bright reflective surface of the sea. When the rotating cylinder scanned the ship, the luminosity decreased, and voltage from the photocell reduced as well. This served as signal to autopilot to correct the course till the dark spot was directly in front of the bomb.

MmMeM, A_Random_Guy and Grey Havoc

Reply

Dilandu

I'm dissatisfied, which means, I exist.

Joined 30 May 2013
Messages 3,482
Reaction score 3,771
Website fonzeppelin.livejournal

16 October 2021 #10

> klem said:
>
> Consequently, the further development of the project was abandoned.

There was a post-war project SNAB-3000 "Krab"; the seeker of SB1-M was fitted to the body and control system of German Fritz-X radio-controlled bomb. It was an attempt to combine well-developed Soviet infrared technology with well-developed German control system.

The bomb worked relatively fine, but it was found that the seeker sensitivity is not satisfying, and it could home on with reasonable accuracy only on very hot objects - like steel mills. So the project was stopped in 1955.

MmMeM, A_Random_Guy, Pioneer and 2 others

Reply

klem

I really should change my personal text

Joined 7 March 2015
Messages 621
Reaction score 1,258

16 October 2021 #11

> Dilandu said:
>
> > klem said:
> >
> > Consequently, the further development of the project was abandoned.
>
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>
>
>
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Thanks Dilandu.I think that the soviet doctrine of that time was expeditious: good results in a very short time but science and technology rarely advance at that speed and politics always takes precedence over other considerations.War is based on numbers, speed of production and minimal but significant classical efficiency.For my part, I think that the contribution of German booty like the fritz x in the projects of the chaika gave a push after the war but without denigrating the existing base of the previous attempts

A_Random_Guy, NMaude and Dilandu

Reply

Dilandu

I'm dissatisfied, which means, I exist.

Joined 30 May 2013
Messages 3,482
Reaction score 3,771
Website fonzeppelin.livejournal

16 October 2021 #12

> klem said:
>
> Thanks Dilandu.I think that the soviet doctrine of that time was expeditious: good results in a very short time but science and technology rarely advance at that speed and politics always takes precedence over other considerations.War is based on numbers, speed of production and minimal but significant classical efficiency.For my part, I think that the contribution of German booty like the fritz x in the projects of the chaika gave a push after the war but without denigrating the existing base of the previous attempts

Agreed. Actually, I think the main problem that precluded more coherent efforts in guided weapon development during the war was the scarcity of electronic components (tubes mainly): Soviet production wasn't exactly very big even pre-war, and with the factory evacuation, loss of trained personnel, producing enough electronic components for complex & costly single-use weapon - like guided bomb - became too wasteful.

A_Random_Guy, Pioneer, Grey Havoc and 1 other person

Reply

T. A. Gardner

ACCESS: Top Secret

Joined 18 February 2021
Messages 895
Reaction score 1,533

18 October 2021 #13

Part of the problem with the Krab glide bomb was you had to get close to the target. This meant that against USN or RN ships the likelihood of interception or defensive fire taking the bomber down was quite high. ASM's were the obvious alternative and really no more expensive to build. So, large guided anti-ship bombs like the Krab series got the axe in favor of ASM's.

Pioneer

Reply

klem

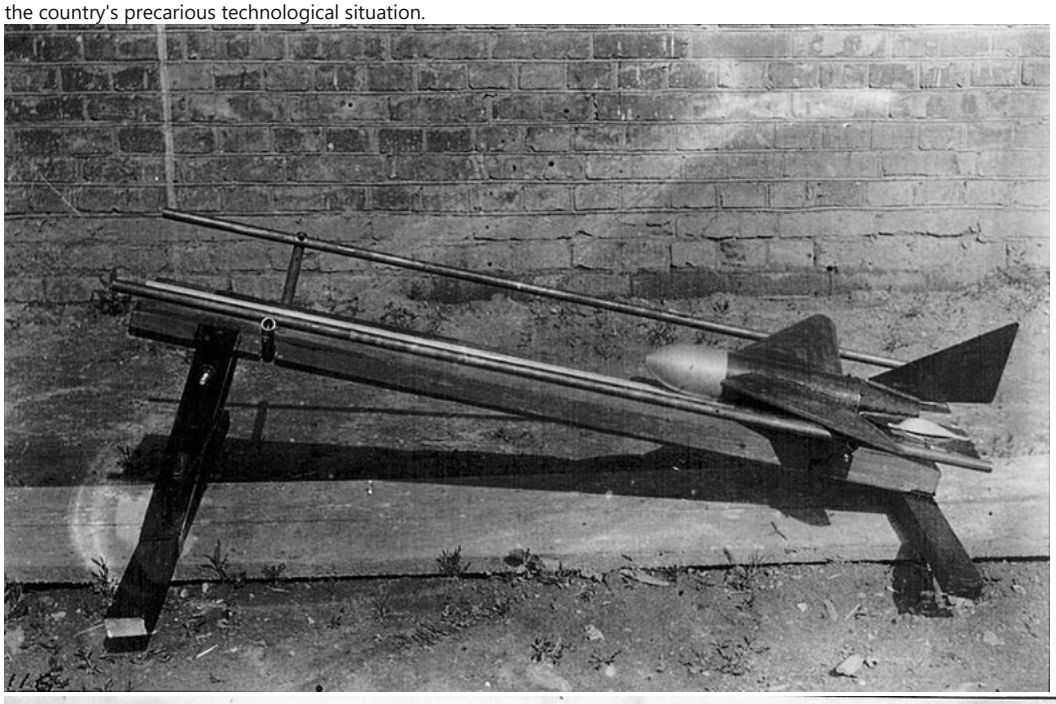
18 November 2021 #14

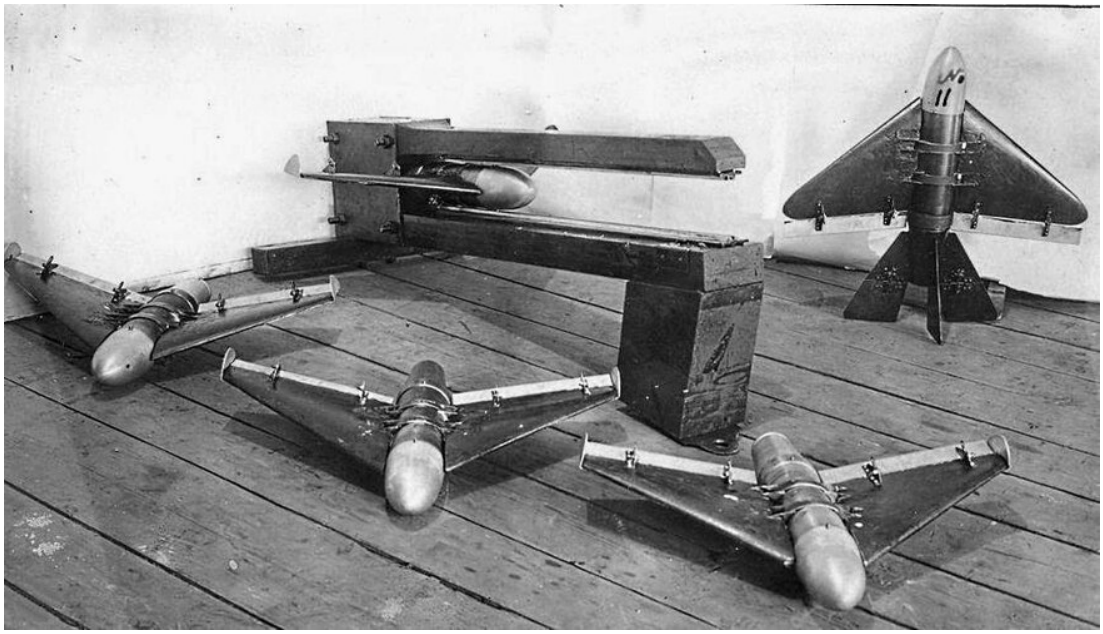
In the mid-1930s at the institute (RNII), specialists carried out various works to create sample technologies for the rocket industry and reaction. In 1933, tests of projectiles began, aimed at stabilising them so that they could maintain a very precise flight pattern. Various attempts were made to create aerodynamically stable gliding or propelled bombs capable of hitting targets from a distance. To this end, the Institute's specialists looked into the question of rocket bombs and a range of different rocket shapes were designed and tested, in particular rockets with liquid propellant engines, and several of

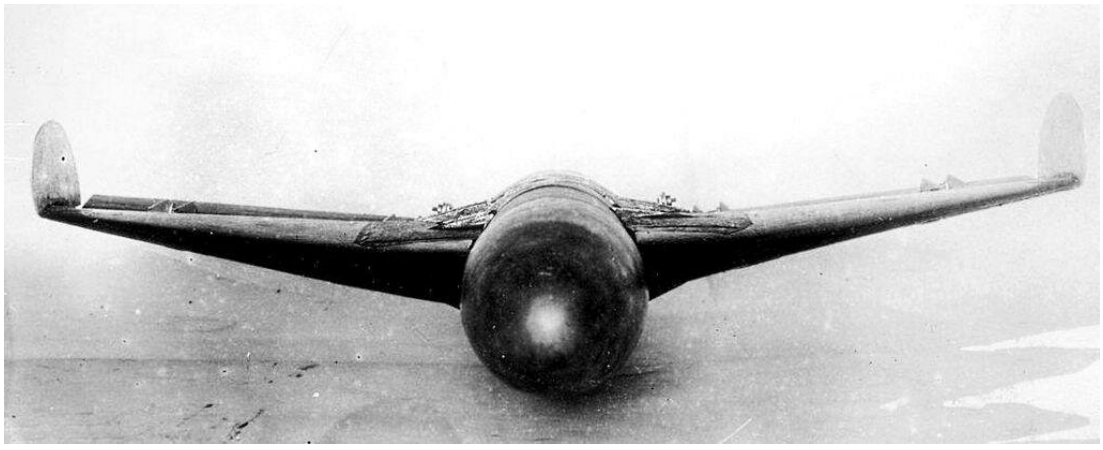
I really should change my personal text

Joined 7 March 2015
Messages 621
Reaction score 1,258

these models were created without precise names. The main purpose of the Soviet experiments at that time was to introduce knowledge about the missile industry in the Soviet Union, despite the considerable lack of such knowledge due to the country's precarious technological situation.







A_Random_Guy, Pioneer, Grey Havoc and 5 others

Reply

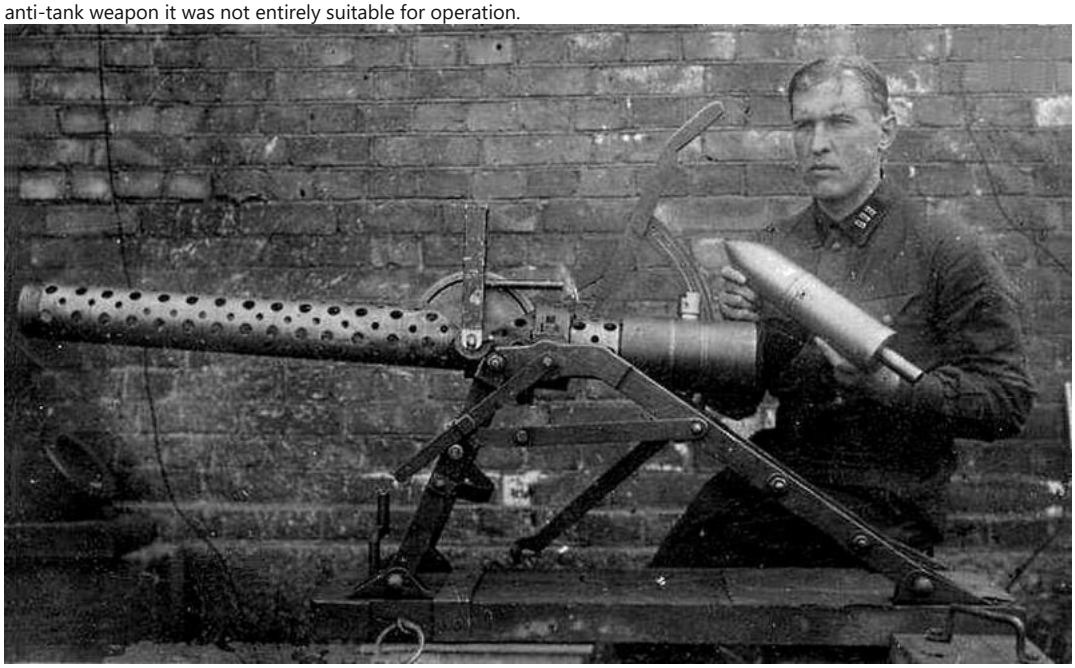
klem

I really should change my personal text

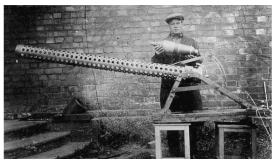
Joined 7 March 2015
Messages 621
Reaction score 1,258

27 November 2021 #15

Boris Sergeevich Petropavlovskiy, designer Engineer specializing in rocket artillery, graduated from the Military Technical Academy of Leningrad, joined the GDL (the gas dynamics laboratory) in 1930 (Before its merger with the RNII-NII Research Institute No. 3). At GDL, he moved from developing active rocket projectiles on smokeless powder for standard artillery systems to creating recoilless guns with launchers in the form of simple perforated tubes for firing Katyusha rocket (RS) projectiles , its device is an anti-tank weapon of 82-mm, a turbo-reaction (Турбореактивный) rocket launcher. The barrel is mounted on a support to ensure uniformity of aim, its shots were precise, the barrel is only a guide, there is no pressure in it. As a field weapon, it did not arouse much interest from the authorities concerned, due to the lack of advantages over the Soviet standard guns the shots are difficult, with a short range, and more expensive. The authorities concluded that as an anti-tank weapon it was not entirely suitable for operation.



Attachments



02)-GDL laboratory assistant wit...

03)-Launch tube 132 mm on an ...

MmMeM, Pioneer, Grey Havoc and 1 other person

Reply

klem

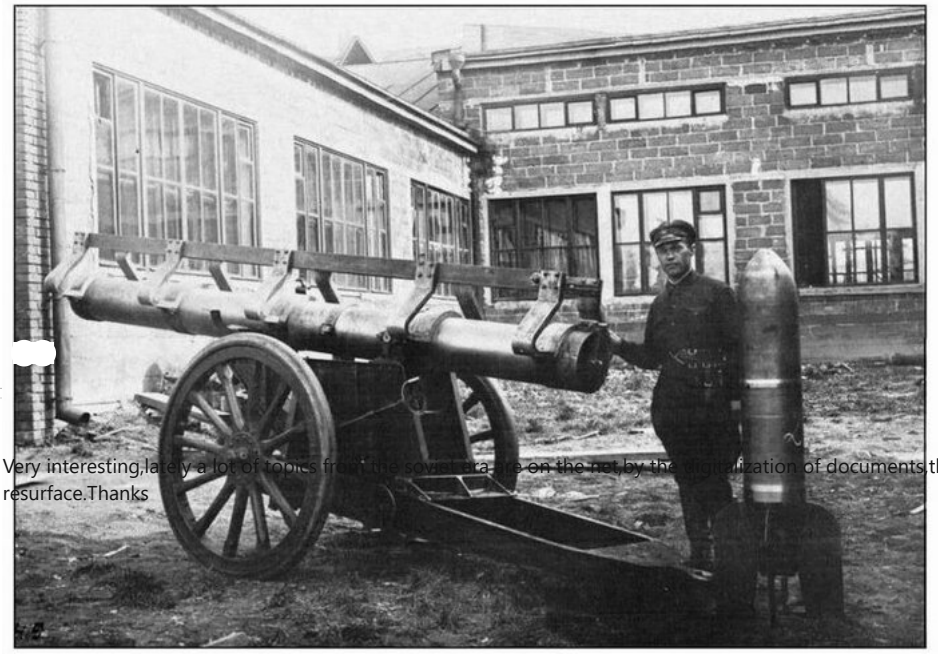
I really should change my personal text

Joined 7 March 2015
Messages 621
Reaction score 1,258

27 November 2021 #16

In the 1930s, specialists from the RNII-NII Research Institute No. 3, carried out various works on the creation of rocket technology samples. (Today the institute has evolved into the Keldysh Center, specializing in the creation of products for the rocket and space industry). Thus the RNII since 1933 also included the former GDL gas dynamics laboratory, specialized mainly in solid fuel rockets, in the form of rocket shells, bombs and liquid propellant rocket aircraft in the form of missiles, aerial torpedoes. . As early as 1933, testing of several shell samples began, and from 1934 to 1935 there was sufficient data for the introduction of shells into troops. During these years, the specialists of the Institute carried out experiments of the RNII Defense Works program for 1935. the program included several objects among others the development of a highly explosive projectile of 245 mm, Weight 120 kg, speed 320 m / s, range 800 m, accuracy 1/100 range, which passed the

factory firing tests and was ready for an experimental batch order.



Reply

#17

Scapaflow
ACCESS: Restricted

Joined 19 November 2021
Messages 38
Reaction score 35

Very interesting,lately a lot of topics from the soviet era are on the net,by the digitalization of documents,they resurface.Thanks

Grey Havoc and Dilandu

Reply

klem
I really should change my personal text

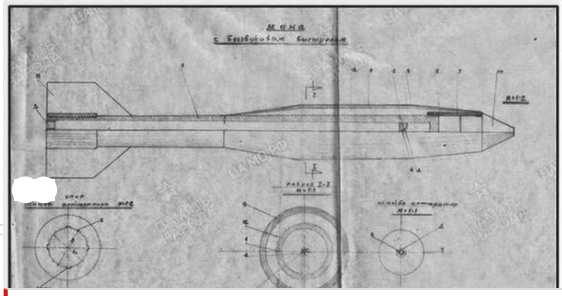
Joined 7 March 2015
Messages 621
Reaction score 1,258

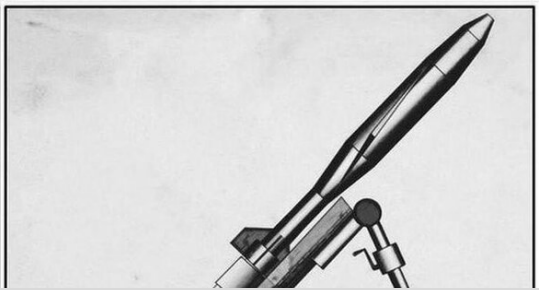
8 February 2022 #18

"The project of a 57-mm mortar with a silent shot. Army project of Lieutenant Panteleev M.N., presented in May 1944. The project of l-ta Panteleev contains sketches of the actual mortar and ammunition with a silent shot and a flat trajectory, a theoretical justification for the development, preliminary calculations, application prospects. There are discrepancies in the descriptive and computational parts of the project. A rod mortar with an imaginary triangle layout scheme, with a base plate and a coulter is proposed. The mortar has a guide rod with a length of 500 mm and a diameter of 25 mm, along the outer surface of which 4 longitudinal ribs with a height of 2-2.5 mm are made, a firing pin is fixed on the "muzzle" of the rod. The guide rod passes into a support pipe with a diameter of 50 mm, which ends with a ball fifth, which is installed in the socket of the base plate. A bracket from a corner on which a bipedal coulter is mounted is fixed on the support pipe. In general, the methods of handling a mortar are similar to the methods of handling regular 50-mm and 82-mm mortars, the shot is self-inflicted. The mine is put on the guide rod, while it is required to combine the position of the cutouts of the thrust coupling of the mine and the ribs on the guide rod, the mine drops to the stop under its own weight, the firing pin in the end of the guide rod impales the primer igniter, the firing charge is ignited and the mine is thrown. The sight, the rotary mechanism, the lifting and leveling shock absorber, the base plate are the same as those of the 82 mm mortar.The total design weight of the mortar is about 30 kg. The fragmentation ammunition (mine) contains a steel central tube ("barrel"), at the cut of which the first 4 stabilizer is installed, and at the upper blind end of the tube a propellant charge with an igniter capsule and an obturator washer (piston) with a hole for the passage of the striker is placed.

The total length of the mine is 600 mm. A branch pipe with 2 side holes is screwed onto the "trunk" of the mine, 10 grams of TNT (intermediate detonator) is placed in the branch pipe and the head mine fuse is screwed in. A splinter cast-iron casing with an outer diameter of 57 mm, having a mass of 0.7 kg, is fixed around the "trunk" of the mine. A charge of TNT (apparently bulk) weighing 0.1 kg is placed inside the cast-iron casing (in calculations, the mass of TNT is assumed to be 0.4 kg). The total mass of the ammunition is about 3 kg. The estimated mass of the explosive charge is about 15 g of smokeless powder, while the estimated initial velocity of the mine is about 100 m / s, with an elevation angle of 45 °, the estimated firing range is about 1100 m. For firing along a flat trajectory, Panteleev proposed to equip the ammunition with additional bearing planes mounted on the body of the mine at an angle of 15 ° to the axis. The total area of the planes is 500 cm2, the span is 30 cm, the approximate weight of the planes is 200-300 grams, they are made of plastic or aluminum. The planes are removable, installed on the mine immediately before firing. According to the author's idea, a mine equipped with similar wings can be used for direct fire at small elevation angles (only how reliable will self-tapping be at small elevation angles of the guide rod?) The soundlessness and flamelessness of the shot is ensured by locking the powder gases of the explosive charge in the "barrel" of the mine, under the influence of which the obturator, acting as a piston, pushes the mine away from the guide rod of the mortar, which ensures throwing. The obturator brakes at the open cut of the "trunk" of the mine, clogging the "trunk". The calculated gas pressure in the charging chamber is 1850 kg/cm2, the calculated pressure at the mine "trunk" section is 145 kg/cm2. When hitting the target, the "trunk" of the mine breaks, creating additional striking

elements".(The Panteleev 57-mm mortar project .USSR. 1942 / 1944).-(https://raigap.livejournal.com/958075.html)





athpilot
Fly me to the moon...
Joined 18 November 2012
Messages 398
Reaction score 387

klem said:

"The project of a 57-mm mortar with a silent shot. Army project of Lieutenant Panteleev M.N., presented in May 1944. The project of l-ta Panteleev contains sketches of the actual mortar and ammunition with a silent shot and a flat trajectory, a theoretical justification for the development, preliminary calculations, application prospects. There are discrepancies in the descriptive and computational parts of the project. A rod mortar with an imaginary triangle layout scheme, with a base plate and a coulter is proposed. The mortar has a guide rod with a length of 500 mm and a diameter of 25 mm, along the outer surface of which 4 longitudinal ribs with a height of 2-2.5 mm are made, a firing pin is fixed on the "muzzle" of the rod. The guide rod passes into a support pipe with a diameter of 50 mm, which ends with a ball fifth, which is installed in the socket of the base plate. A bracket from a corner on which a bipedal coulter is mounted is fixed on the support pipe. In general, the methods of handling a mortar are similar to the methods of handling regular 50-mm and 82-mm mortars, the shot is self-inflicted. The mine is put on the guide rod, while it is required to combine the position of the cutouts of the thrust coupling of the mine and the ribs on the guide rod, the mine drops to the stop under its own weight, the firing pin in the end of the guide rod impales the primer igniter, the firing charge is ignited and the mine is thrown. The sight, the rotary mechanism, the lifting and leveling shock absorber, the base plate are the same as those of the 82 mm mortar.The total design weight of the mortar is about 30 kg. The fragmentation ammunition (mine) contains a steel central tube ("barrel"), at the cut of which the first 4 stabilizer is installed, and at the upper blind end of the tube a propellant charge with an igniter capsule and an obturator washer (piston) with a hole for the passage of the striker is placed.

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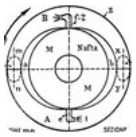
View attachment 673819

Hi Klem, thanks for sharing! That is very interesting. The whole thread btw. is very good and informative. Thanks all.

Pioneer, Grey Havoc and klem

Reply



!Mark
ACCESS: Restricted
Joined 4 August 2019
Messages 34
Reaction score 31

14 November 2022 #20

http:// mentallandscape.com/S_GIRD.htm
This site contains a lot of useful information. The soviets were leading rocket research in the '30s and developed regeneratively cooled engines, gyroscopically guided missiles, pulse-jet engines, unmanned and manned missiles and rocket planes before Germany, often wrongly credited for those inventions, and a lot of those things before Goddard or any american.
This information forces us to rethink history, but unfortunately it still remains unknown to the public, much like the story of Korolev.
http://mentallandscape.com/G_X.jpg
http://mentallandscape.com/G_GPS3.jpg
http://mentallandscape.com/G_06_212.jpg
http://mentallandscape.com/G_RP1c.jpg

Last edited: 14 November 2022

Pioneer, klem and Grey Havoc

Reply

AI098
ACCESS: Restricted
Joined

14 November 2022 #21

Dilandu said:

> klem said:
>
> 谢谢，我是livejournal的追随者。

28 September 2022
Messages 7
Reaction score 9

> 不客气）我也有关于美国、英国、法国、意大利和日本二战时期制导武器的文章。

I am very interested in this, could you please send the link?

Reply

klem
I really should change my personal text
Joined 7 March 2015
Messages 621
Reaction score 1,258

14 November 2022 #22

> AI098 said:
>
> > Dilandu said:
> >
> > > klem said:
> > >
> > > 谢谢，我是livejournal的追随者。
> >
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>
> I am very interested in this, could you please send the link?

https://fonzeppelin.livejournal.com/154118.html

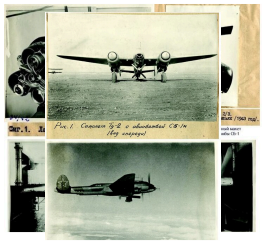
Reply

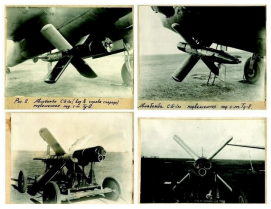
klem
I really should change my personal text
Joined 7 March 2015
Messages 621
Reaction score 1,258

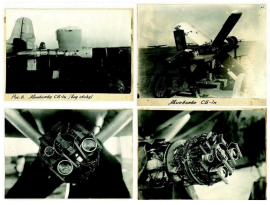
3 September 2023 #23

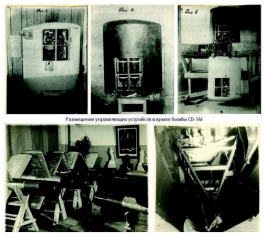
Pictures of SB-1,extracted from an article in "НАЦИОНАЛЬНЫЙ АВИАЦИОННЫЙ ЖУРНАЛ" 3-4 2023. (NATIONAL AVIATION MAGAZINE)

Attachments


e.jpg


b.jpg


c.jpg


d.jpg

MmMeM, Scapaflow, publiusr and 1 other person

Reply

klem
I really should change my personal text
Joined 7 March 2015
Messages 621
Reaction score 1,258

6 March 2024 #24

View: https://www.youtube.com/watch?app=desktop&v=JVIZ4j25VW8

MmMeM, Scapaflow and NMaude

Reply

P

Pioneer

Seek out and close with the enemy

Senior Member

Joined 21 May 2006
Messages 2,723
Reaction score 1,653

> klem said:
>
> In the 1930s, specialists from the RNII-NII Research Institute No. 3, carried out various works on the creation of rocket technology samples. (Today the institute has evolved into the Keldysh Center, specializing in the creation of products for the rocket and space industry). Thus the RNII since 1933 also included the former GDL gas dynamics laboratory, specialized mainly in solid fuel rockets, in the form of rocket shells, bombs and liquid propellant rocket aircraft in the form of missiles, aerial torpedoes. . As early as 1933, testing of several shell samples began, and from 1934 to 1935 there was sufficient data for the introduction of shells into troops. During these years, the specialists of the Institute carried out experiments of the RNII Defense Works program for 1935. the program included several objects among others the development of a highly explosive projectile of 245 mm, Weight 120 kg, speed 320 m / s, range 800 m, accuracy 1/100 range, which passed the factory firing tests and was ready for an experimental batch order.View attachment 668623

Regrettably, I've just stumbled across this fascinating thread. It's nice to see Russian scientists recognised for their world leading development in weapon related rocketry. For as much as I've appreciated this historical fact, the romantic notion of the German's being the the modern fathers of rocketry seems to have carried.

Now as to the picture in this post, it's obvious the carriage and launch tube are both improvised prototyping. But the shown rocket has stabilising fins.... Would I be right to assume the shown launcher would utilise an unfined derivative of the shown rocket?

Regards
Pioneer